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Wm. Williams,



U.C. Expt. Station.

THE UTAH

AGRICULTURAL COLLEGE

EXPERIMENT STATION.

BULLETIN No. 37.

Fruits and Fruit Trees.

Ornamental, Forest and Shade Trees.

OCTOBER, - - 1894.

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J. H. PAUL, Director.



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The Bulletins will be sent free to anyone requesting them.

Experiments with Fruits and Fruit Trees.

BY E. S. RICHMAN.

STRAWBERRIES.

The strawberry beds on the Experiment Station grounds this year are not all that we would like them to be. The new bed was set last spring—'93—after the old bed had ceased fruiting in July, consequently the growth was not sufficient to give a good crop of berries this year, and as the old bed had about outlived its usefulness, our deductions this year are made from beds not in the best of fruiting conditions. The results this year only help to confirm the correctness of previous reports. The statements made below are taken from notes on the bed set in July, '93.

Captain Jack (Bisexual).—This variety has made a good growth of vine, and seems to be well adapted to this climate. The yield was good though there were five other varieties that were better. It makes a good market berry though not of the largest size.

Charles Downing (Bisexual).—This gave a little better yield than the above variety, but is not quite as large and is softer, consequently is not as good a berry for shipping purposes. A very good berry for home use.

Cloud (Pistillate).—This continues, as it has been from the first, a good strong grower, but no berries worth mentioning.

Crescent Seedling (Pistillate).—Yield about the same as Charles Downing. Berries are small and of poor quality. Has not been a profitable berry here.

Eureka.—Has proven a failure here.

James Vick (Bisexual).—A low growing but healthy plant. Yield this year was poor. Plants did not seem to get the start that some varieties did.

Lovett's Early (Bisexual).—This is a good strong growing variety, berries are of medium size and fair quality—valuable for an early berry.

Michel's Early (Bisexual).—This is a very early variety, but here it has not borne enough fruit to pay for growing it. Plant is a strong grower.

Parker Earle (Bisexual).—This variety has not made a very strong growth owing to the poor quality of the plants that were used in setting the new bed. This year it stands third in productiveness, dropping from its place at the head of the list last year. With good plants to start with I believe it would hold first place easily.

Racster (Bisexual).—A good, strong grower, berries are of good quality and very even in size throughout the season. Yield is fair but not as good as previously reported.

Sharpless (Bisexual).—A strong grower. Yield good, standing second in productiveness this year. Berries of fair size and good quality.

Thompson's No. 7 (Bisexual).—This stands first in productiveness this year, taking the place formerly occupied by Parker Earle. Berries are not large, but are of very even, medium size and good quality.

Warfield No. 2 (Bisexual).—The greatest difficulty we have with this variety is to get a good stand of plants. Not more than 10 per cent. of those set out have lived. Yield as a consequence is poor.

Wilson (Bisexual).—We have again to report a failure with this variety. I believe it is due to local causes, as the plants in neighboring towns and on lower, moister land do well. Our plants grow very rank, but fail, almost entirely, to bear fruit.

I believe that the changes in certain varieties reported this year are due, in part at least, to the late setting of the bed last year. Those varieties with poor roots were under a great disadvantage. Had they been planted earlier they would have had

time to make good, strong plants by fall, but being planted in the middle of the summer it was a very severe check to them. In drawing conclusions last year's report (Bulletin No. 25) should be consulted. At that time we recommended the Greenville as the most promising of the new berries. Our stock has been consumed for new beds, but we hope to have something to say about it next year. As the three most promising varieties we recommend Parker Earle, Thompson's No. 7 and Sharpless.

GRAPES.

Our vineyard has now been in bearing three years and presents conditions from which we are better able to draw conclusions than was possible last year. Some varieties have proven their unfitness for use here, owing to there being no demand for certain classes of grapes. All good table grapes that ripen with Concord or before October 1, are desirable. Very late grapes will not ripen and those of poor table quality have no demand. We note specially the following varieties and recommend them for all parts of the Territory where less hardy varieties will not grow and where later varieties do not have time to ripen before severe freezing:

Agawam.—The berries of this variety are large and black, but the bunch is rather small and loose. The berry is more solid and has less pulp than most varieties originating from American species. It is highly prized by some. Yield this year, 8½ pounds per vine.

Concord.—This variety does well both in growth of vine and in the quantity and quality of the fruit produced. It is a black grape, not quite as large as Agawam, but generally preferred as a table grape. If only one variety is planted this is probably the most desirable. Yield, 8 pounds per vine.

Delaware.—This variety does well here and is an excellent table grape, though a little small and on that account does not sell readily except where its excellent qualities are known. A

little earlier than Concord, purple and has a very compact bunch. Yield, 10 pounds per vine.

Early Victor.—This is a very early, black grape, a little smaller than Concord; bunch very compact and of medium size. This is the most desirable of early grapes on account of its good bearing qualities. Yield $9\frac{1}{2}$ pounds per vine.

Eaton.—This is a very large, black grape; bunch is rather loose and small. The quality is not quite as good as Concord and the vine is not as good a bearer.

Empire State.—This is a very sweet, white grape, and a few are desirable for table use, but the vines are shy bearers, and therefore not profitable.

Goethe.—This variety, if we have the true Goethe, is earlier than generally reported. A very desirable table grape; black, medium in size and bunch, and ripens between Early Victor and Concord.

Massasoit.—A large, red grape of good quality; the bunch is rather small and loose, but quality and season of ripening, which is a little before Concord, would place it in the list of desirable grapes. The vine is a rank grower and yields well. Average yield $15\frac{1}{2}$ pounds per vine.

Martha.—Fruit of good quality, but the yield is not sufficient to warrant recommending it in this section.

Mason's Seedling.—The above remarks apply to this also.

Moore's Diamond.—Yield is too light to pay to grow here.

Moore's Early.—This is a fine, early grape, but the vine is a very slow grower and a very shy bearer, and for that reason I recommend Early Victor for first early.

The following varieties, for various reasons, we do not recommend for sections with growing season as short as it is in Cache county or for other reasons to be mentioned below:

Catawba.—In many respects a desirable grape, but a little too late for this county.

Cynthiana.—This is a wine grape and of no value for other purposes here. Bunch of medium size and moderately compact; berry black with blue bloom, small and decidedly sour as grown here.

Elvira.—A very heavy bearer, bunch small, compact; berry medium in size, green, and too sour for table use. Is extensively grown for wine-making.

Etta.—Is also a very heavy bearer, but is somewhat later than *Elvira* and like it too sour for table use. Bunch very compact, medium size; berry green, medium size.

Moyer.—Vines are four years old but have not yet produced much fruit. Too shy a bearer to recommend. The list given as desirable, namely—*Agawam*, *Concord*, *Delaware*, *Early Victor*, *Eaton*, *Empire State*, *Goethe*, *Massasoit*, *Martha*, *Mason's Seedling*, *Moore's Diamond*, and *Moore's Early* is believed to contain only such grapes as will prove hardy in any part of the Territory and sufficiently early to ripen in most places. Those varieties which bear only sparingly, however, should be avoided as a rule. Any section with a specially short season should at least try the *Early Victor*.

PEACHES.

Nearly all the varieties we have fruited this year, and the great majority matured their fruit; some few, however, were so late as to be considerably injured by the October freezes. None of the trees bore heavily; a number bore as much as one-third of a bushel, however. Most of them were planted in the spring of 1890. During the winter of 1892-3 nearly all the peach trees were killed back into the growth of 1891, so the trees are still small, but looking well. Below is a list of those most desirable for this section:

Chair's Choice.—Ripened about September 25th and is quite promising, being of medium size and good quality. It is a freestone.

Christiana.—Ripens about October 5th. A very good yellow peach and did not mature any fruit till this year. Is a freestone.

Early Rivers and Early St. John.—These varieties ripen about September 1st and are very desirable on account of

earliness. The quality is not as good as some of the later varieties, but earliness is one of the necessary qualities here.

Mrs. Brett.—This is a fine, large white peach, but does not ripen till early in October, and for that reason is most too late for this section.

President.—The above remarks apply equally well to this variety.

Prize.—This is an early variety of good quality and fair size, and because of its earliness is desirable in this location.

Roseville Cling.—This is a very large, fine white cling, ripening most too late for Cache county and similar locations.

The following varieties have been found to be entirely too late to be of any practical value here, and are therefore not recommended:

Heath Cling, Lord Palmerston, Marshal Neil, Stark and Stevens' R. R.

APRICOTS.

The only apricots we have fruited so far have been of the Russian varieties. Generally speaking these varieties are small, but of good flavor, they are constant and heavy bearers and hardy in Cache county. Though not desirable, perhaps, where the larger varieties will grow, they are quite an acquisition where the larger and tenderer varieties will not thrive. They are also preferred by some people for canning purposes.

Alexander.—This is the largest variety we have grown, owing, perhaps, in part, to the fact that the tree had fewer on. Fruit but little colored by the sun. Ripe early in August.

Budd.—Smaller than Alexander, but a more abundant bearer. Fruit well colored on the side next to the sun. A few days earlier than Alexander.

Gibb.—A few days earlier than Budd, otherwise much like it. Tree a heavy bearer.

CHERRIES.

The cherry is the most profitable fruit we have growing on the Experiment Station grounds, yet it is probably the least grown in Cache county, due probably to the fact that when trees are planted they are generally the sweet cherry, which is not perfectly hardy here, and fruit growers get discouraged and cease to plant the cherry. The sour cherry is perfectly hardy on the Experiment Station grounds, and grows and fruits well. The varieties grown here are as follows:

Belle de Montreall.—Bore very sparingly this year, but appears to be a desirable variety.

Double Natte.—We have two trees of this variety, one bearing very heavily and the other but very lightly. Average weight of fruit per tree, $5\frac{1}{2}$ pounds. Trees planted in spring of 1891.

Early Richmond.—Trees of this variety were planted in the spring of 1890, and have been perfectly hardy. In 1893 the two trees produced two pounds of fruit. This year (1894), the two trees produced $39\frac{1}{2}$ pounds, or $19\frac{3}{4}$ pounds per tree. The fruit is medium in size, light purple in color and quite sour. Desirable for canning purposes.

Lieb.—Very dark red when fully ripe and superior to Early Richmond in quality; only a few cherries this year.

Mt. Large.—This is a very heavy bearer. Trees planted in spring of 1890 produced in 1893, 3 pounds per tree, and this year (1894), 30 pounds. It very much resembles the Early Richmond.

Ostheim.—This is a slow-growing tree; cherry a little larger and darker than Early Richmond.

The following sweet cherries are growing on the Station grounds with very slight injury during the winters:

Black Eagle.—This is rather a small cherry and seems to be lacking in quality.

Black Tartarian.—Trees same age as Mt. Large but only produced three pounds per tree. A large, black, sweet cherry of excellent quality.

Early Purple.—A very small cherry and more bitter than sweet, bore five pounds per tree.

Napoleon.—Same age as above and produced one pound per tree.

Rockport.—A light purple cherry, ripens with Black Tartarian and is of about the same quality; less than one pound per tree.

Vilne Sweet.—A very light-colored, almost white, cherry, had but a few cherries this year. Promising.

PLUMS.

The different varieties have all fruited, some sparingly and some abundantly. The varieties of American origin fruited more abundantly than those of European origin. The only exception to this being the Shropshire Damson, which fruited very heavily. The Wolf plum bore the most abundantly of the American varieties and is a very desirable variety. De Soto is better in quality, but much later, and in very cold and backward districts may not ripen its fruit. For quality the Lombard is the best plum in our collection.

PEARS.

Nearly all the varieties we have, fruited this year. Much of the fruit blew off, however, and we can only report on a few varieties.

Bartlett.—Is perfectly hardy on the Station grounds, but in some sections is more or less injured by severe winter weather. Where it will stand the climate, there is probably no more profitable pear to grow. The two trees in our collection planted in 1890, bore three pecks of fruit. Quality good.

Kieffer.—This has fruited equally as well as Bartlett, but the fruit does not compare favorably with it; the flavor is poor

and the flesh is full of grit cells. It is a fine looking pear and will sell well. We have two trees, planted in the fall of 1890, and two in the spring of 1891, no appreciable difference can be seen in the growth of the trees or in the amount of fruit borne.

Margaret.—This is a week or ten days earlier than Bartlett and a very fine pear, specially for dessert.

Mikado.—This is a small pear, good only for cooking purposes. Inclined to shrivel somewhat in ripening.

Sugar.—Very early and very small. Too small to be of much importance as a market pear; quality fair.

Winter Bergamy.—A pear of fair size and good quality, but with us ripens too soon for a winter pear. Ours were gone by November 1st.

APPLES.

Only a few trees, set in the spring of 1890, have borne. The trees grew very slowly at first, but now the orchard is looking well, though the trees are small for their age. We have over eighty varieties and the Wine Sap and Longfield are the only trees that have borne more than a few specimen fruits.

Orchard Culture.

In the spring of 1891 an experiment was begun to give a practical illustration of the effects of different kinds of treatment for young orchards. Plat No. 1, containing four trees, was seeded at once to lucern; No. 2 seeded to clover, No. 3 to timothy, and No. 4 seeded to a mixture of timothy and clover, all being allowed to grow close around the trees. Each plat contained four trees set twenty-four feet apart.

All the trees in the lucern died the first summer. The four plats were watered alike, but the lucern plat suffered most. On the other three plats one-half the trees died. All were reset in the spring of 1892 and more water applied than the previous year. The lucern by this time seemed to have such a full possession of the land that it was very difficult to keep the trees from drying. Some of them lived through the summer, but were dead in the spring of 1893. The trees on the other three plats were in about the condition as the previous year. All were again reset in the spring of 1893. At the present time—fall of 1894—all the trees on the lucern plat are dead. On plat No. 2 one tree is dead, and on plats 3 and 4 two trees each are dead. As a check on this experiment six trees were set adjoining on land which has been kept well cultivated. The six trees are alive and doing well.

Ornamental, Forest and Shade Trees.

A full description of each variety is given in Bulletin No. 18 of this Station; also a second report on the same in Bulletin No. 25. Our notes respecting value for forestry purposes are based on measurements of the circumference taken one foot from the ground. Up to the present time, the soft-wood trees have grown so much more rapidly than the hard-wood trees that they only have been considered as promising for forestry purposes. This year, however, the hard-wood trees are doing better and may yet show themselves adapted to this soil and climate. We note the following facts concerning forest trees:

The Poplars are the most promising. The Lombardy, Carolina and Argentean Poplar increasing in circumference from $5\frac{1}{2}$ to $6\frac{1}{2}$ inches in the past year. The Argentean Poplar increasing $6\frac{1}{2}$ inches and heading the list for increase of girth, but owing to its spreading habit is probably not as desirable for timber culture as the Lombardy or Carolina. The Carolina increased 6 inches in girth and takes the second place for rapidity of growth. All things considered, it is probably the most desirable for forestry purposes if the object be simply to raise fire-wood. After the poplars the black locust is probably the most promising. The growth is less, but the wood is harder, and, therefore, more valuable to burn.

Some of the more valuable hard-woods are beginning to make a more promising growth. The black walnut, white walnut and European ash (*Fraxinus Excelsior*) are very expensive woods in this inter-mountain country, and if they continue to grow as they have this year, it may become profitable to grow them for cabinet and other manufacturing and building purposes.

Of those varieties desirable as ornamental and shade trees, we mention the following:

Populus Argentea.—This makes a very desirable tree both on account of its peculiar appearance and because it is a very rapid grower. The under side of the leaves and ends of the branches are white.

White Elm (*Ulmus Americana*).—This tree does well here and makes a beautiful tree.

European Ash.—This makes a valuable shade tree, as well as being valuable for forestry purposes.

Scotch pine, Arbor Vitæ and Colorado Blue Spruce. All evergreen and all doing well here. The Blue Spruce is specially valuable on account of the different color presented by different specimens.

SUMMARY.

1. Parker Earle, Sharpless and Thompson's No. 7, are recommended as promising strawberries.

2. The following varieties of grapes are recommended for trial: Concord, Delaware, Early Victor, and Massasoit. The Early Victor being specially recommended for places subject to early freezes.

3. Only the peaches generally classed as early or mid-season should be planted in Cache county and localities with a similar climate.

4. Russian apricots are specially recommended where the larger kinds will not thrive on account of severe winters.

5. Sour cherries, such as Mt. Large and Early Richmond, should be planted where the sweet cherry does not thrive.

6. Sowing lucern, timothy, or clover in a young orchard should be discouraged.

7. Poplar trees are shown to be the most promising for general forestry purposes.

8. The growing of some of the hard-wood trees, such as Black and White Walnuts and Ash, can probably be made profitable.







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